

Amendments to the Claims:

1. (Currently Amended) A diaphragm valve comprising:

a fluid passageway passing through a valve body;

a diaphragm for sealing said fluid passageway; and

a valve seat having a bottom, a top, and an annular surface that extends from the bottom to the top, wherein the fluid passageway passes through the bottom and through the top of the valve seat, wherein said valve seat includes one or more protrusions that extend radially outward from the annular surface and that penetrate into a surface of a portion of the valve body to secure the valve seat to the valve body.
2. (Original) The diaphragm valve of claim 1, wherein said valve seat is an insert formed separate from said valve body.
3. (Original) The diaphragm valve of claim 1, wherein said valve seat is inserted within a valve seat recess.
4. (Previously Presented) The diaphragm valve of claim 1, wherein said valve seat is inserted within a valve seat recess formed by an outer body wall and open to said fluid passageway.
5. (Original) The diaphragm valve of claim 4, wherein said open side of said valve seat is flush with said fluid passageway at a point where the valve seat and the valve body meet.
6. (Original) The diaphragm valve of claim 1, wherein said valve seat includes a raised sealing surface that generally matches the contour of a surface on said diaphragm.

7. (Original) The diaphragm valve of claim 1, wherein at least some portion of said valve seat is case hardened.
8. (Original) The diaphragm valve of claim 7, wherein said hardened portion of said valve seat is substantially free from carbides.
9. (Original) The diaphragm valve of claim 1, wherein the valve seat is greater than 55 Rockwell C.
10. (Original) The diaphragm valve of claim 1, wherein the valve seat is harder than the diaphragm.
11. (Previously Presented) The diaphragm valve of claim 1, wherein said valve seat is a metal valve seat and wherein at least one of said one or more protrusions is on an outer edge of said metal valve seat.
12. (Previously Presented) The diaphragm valve of claim 1, wherein said valve seat is a metal valve seat and wherein at least one said one or more protrusions is angled with respect to a center radius of the metal valve seat.
13. (Original) The diaphragm valve of claim 1, wherein at least one of said one or more protrusions is angled away from a seat bottom portion.
14. (Original) The diaphragm valve of claim 1, wherein said valve seat is metal.

15. (Original) The diaphragm valve of claim 1, wherein at least some portion of said valve seat is hardened.

16. (Original) The diaphragm valve of claim 1 further comprising a thin layer of polymeric material covering one or more surfaces of said valve seat.

17. (Currently Amended) A diaphragm valve comprising:

a fluid passageway disposed within a valve body;

a diaphragm for sealing said fluid passageway; and

a valve seat insert comprising an inner circumferential surface and an outer circumferential surface, wherein said inner circumferential surface is substantially flush with said fluid passageway at a point where the valve seat and valve body meet, wherein said outer circumferential surface includes one or more protrusions that a portion of the valve body is deformed around such that the one or more protrusions penetrate a surface of said portion to secure the valve seat to the valve body.

18. (Original) The diaphragm valve of claim 17, wherein said valve seat insert inner circumferential surface forms a continuous flow path with said fluid passageway.

19. (Original) The diaphragm valve of claim 17, wherein said valve seat insert inner circumferential surface is formed along the same axis as the fluid passageway.

20. (Original) The diaphragm valve of claim 17, wherein said valve seat insert further comprises a seat sealing surface, wherein said sealing surface is located proximate to said fluid passageway.

21. (Original) The diaphragm valve of claim 17, wherein said valve seat insert further comprises one or more protrusions for securing the valve seat to the valve body.

22. (Original) The diaphragm valve of claim 21, wherein said one or more protrusions form a seal surface between said valve seat and the valve body.

23-25. (Canceled).

26. (Original) The diaphragm valve of claim 17, wherein the valve seat is harder than the diaphragm.

27. (Currently amended) A valve seat comprising:

a generally annular seat body having a bottom, a top, and an annular surface that extends from the bottom to the top, wherein a fluid passageway passes through the bottom and through the top of the valve seat; said seat body comprising metal; and

one or more protrusions that extend radially outward from said annular surface ~~located on one or more surfaces~~ of said seat body, wherein said one or more protrusions are configured to penetrate into a surface of a portion of a valve body to secure and seal the valve seat to a valve body.

28. (Currently Amended) The valve seat of claim 27, further comprising a sealing surface associated with said top of said seat body.

29. (Currently Amended) The valve seat of claim 28, wherein said sealing surface is located along [a] said top portion of the seat body, proximate to an inner surface that defines said fluid passageway of said valve seat.

30. (Previously Presented) The valve seat of claim 27, wherein at least some portion of the valve seat comprises a low temperature carburized surface that is substantially free from carbides.

31. (Previously Presented) The valve seat of claim 30, wherein said portion of the valve seat forms a seal surface against which a metal diaphragm seals when the valve seat is assembled in a valve.

32. (Previously Presented) The valve seat of claim 31, wherein said valve seat is harder than a metal diaphragm with which it is used.

33. (Previously Presented) The valve seat of claim 31, wherein said valve seat is greater than 55 Rockwell C.

34. (Original) The valve seat of claim 27, wherein at least one of said one or more protrusions is angled with respect to the center radius of said valve seat.

35-59. (Canceled).

60. (Currently Amended) A method of staking a valve seat insert comprising the steps of:

inserting a valve seat insert having a bottom, a top, and an annular surface that extends from the bottom to the top into a recess formed in a valve body;

providing one or more protrusions that extend radially outward from said annular surface ~~on one or more surfaces of said valve seat insert~~; and

digging said one or more protrusions into at least one side wall of said valve body.

61. (Original) The method of claim 60, wherein said valve seat insert is metal.

62. (Original) The method of claim 60, further comprising the step of hardening at least some portion of said valve seat insert.

63. (Original) The method of claim 60 wherein said valve seat insert is harder than a diaphragm with which it is used.

64. (Canceled).

65-73. (Canceled).

74. (Previously Presented) The diaphragm valve of claim 1 wherein the one or more protrusions penetrate into a wall that is integrally formed with the valve body.

75. (Currently Amended) The diaphragm valve of claim 74 wherein the wall surrounds an outer circumference of the valve seat body.

76. (Previously Presented) The diaphragm valve of claim 21 wherein an integral wall of the valve body is deformed around the one or more protrusions.

77. (Previously Presented) The method of claim 60 wherein said at least one side wall is integrally formed with the valve body.